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| APPLICATION NO.                                                                                                 | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 09/738,325                                                                                                      | 12/18/2000  | Tazu Nomoto          | 520.39403X00        | 2246             |
| 20457                                                                                                           | 7590        | 09/20/2004           | EXAMINER            |                  |
| ANTONELLI, TERRY, STOUT & KRAUS, LLP<br>1300 NORTH SEVENTEENTH STREET<br>SUITE 1800<br>ARLINGTON, VA 22209-9889 |             |                      | HECK, MICHAEL C     |                  |
|                                                                                                                 |             | ART UNIT             | PAPER NUMBER        |                  |
|                                                                                                                 |             | 3623                 |                     |                  |

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/738,325             | NOMOTO ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Michael C. Heck        | 3623                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 18 December 2000.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-11 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-11 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 18 December 2000 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

1. The following is a First Office Action in response to the application filed 18 December 2000. Claims 1-11 are pending in this application and have been examined on the merits as discussed below.

**Requirement for Information under 37 CFR 1.105**

2. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

Numerous equations are used in the description to describe the applicant's invention, however, the equations are not identified as to their uniqueness. That is, the applicant has taken input information and manipulated it to reach results via the equations, but has failed to identify which equations, if any, were developed specifically for this application that does not exist in any other publication.

Therefore, in response to this requirement, please provide the title, citation and copy of each publication that any of the applicants relied upon to develop the disclosed subject matter that describes the applicant's invention, particularly as to developing the equations. For each publication, please provide a concise explanation of the reliance placed on that publication in the development of the disclosed subject matter.

***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 111. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

4. The disclosure is objected to because of the following informalities:

- On page 1, lines 4-5, delete "The present invention relates to a method for production planning with using a linear programming method", and insert --  
The present invention relates to a method for production planning using a linear programming method --.
- On page 1, line 22 to page 2, line 1, delete "For example, regarding a product A, there may be a method, in which the materials are supplied from Asia so

as to be fabricated in Japan, and another way in which they are supplied in Japan so as to be fabricated in U.S.A., etc.", and insert --For example, regarding a product A, there may be a method, in which the materials are supplied from Asia so as to be fabricated in Japan, and another way in which they are supplied *by* Japan to be fabricated in *the* U.S.A., etc. --.

- On page 2, lines 2-4, delete, "Several methods are proposed, in each of which the production plan forming such the production mode is made up with using a linear programming method." and insert -- Several methods are proposed, in each of which the production plan forming the production mode is made up using a linear programming method. --.

5. The above citation is a mere guide. Applicant is requested to review the specification thoroughly to eliminate additional errors. The application appears to be a literal translation of a foreign application. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. A statement that it contains no new matter must accompany the substitute specification filed.

#### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 1-11** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 6, and 11 provides for the use of

identifying a minimal mathematical relationship between a target value of a management index and a restricted estrangement value using linear programming to be for a “feasible production plan”, but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

8. **Claim 3** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 does not further limit what a “target value” is. For example, per claim 3, a target value can be any number since any number would meet the equal to, greater or less than, or maximal or minimal requirement.

#### ***Claim Rejections - 35 USC § 101***

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 1-11** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of:

- (1) whether the invention is within the technological arts; and
- (2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural

phenomena) that do not apply, involve, use, or advance the technological arts fail to promote the “progress of science and the useful arts” (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For the process claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts. In the present case, **claim 1, 5, 6, and 11** only recite an abstract idea. As to **claim 1**, the recited steps of putting a relationship between a target value of a predetermined management index and an estrangement value therefrom into restriction condition, when formulating the restriction condition into a linear programming problem; and calculating out a feasible production plan, so that the estrangement between said predetermined management index and the target value thereof, being calculated from an executable solution of said linear programming problem, comes to be minimal does not apply, involve, use, or advance the technological arts since all of the recited steps can be performed in the mind of the user or by use of a pencil and paper. The method only constitutes an idea for calculating out production amount and/or supply amount and/or transportation means at a plural number of points of production, material supply and/or marketing, therefore, is deemed to be directed to non-statutory subject matter. As to **claim 5**, the recited memory medium, storing program for executing said processes, in the method of production planning, as defined in the claim 1 does not recite any structure or functionality to suggest that a computer performs a task. This amounts to only storing the program where nothing is done (i.e., computing) to breathe life into the invention. As to **claim 6**, the recited step of performing modeling process on a linear programming

problem with using an equation between target values of predetermined management indices and estrangement values therefrom as restriction condition; a step of calculating out the value of said predetermined management indices by solving said linear programming problem; and a step of calculating out a feasible production plan upon basis of the value of said predetermined management indices does not apply, involve, use, or advance the technological arts since all of the recited steps can be performed in the mind of the user or by use of a pencil and paper. The method only constitutes an idea for production planning, for calculating out production amount and/or supply amount and/or transportation means at a plural number of points of production, material supply and/or marketing, therefore, is deemed to be directed to non-statutory subject matter. As to **claim 11**, the recited step of receiving at least one target value information of management indices which are transmitted from terminal sides of users; calculating out a solution for achieving the target values of the management indices or a solution for making estrangement from target values of the management indices minimal, through conducting calculation process in a production plan system which is accumulated at a host server side, with using transportation information among a plural number of points and/or information relating to cost at each point, which are accumulated in said server side does not apply, involve, use, or advance the technological arts since all of the recited steps can be performed in the mind of the user or by use of a pencil and paper. The method only constitutes an idea for production planning, therefore, is deemed to be directed to non-statutory subject matter.

As to technological arts recited in the preamble, mere recitation in the preamble (i.e., intended or field of use) or mere implications of employing a machine or article of manufacture to perform some or all of the recited steps does not confer statutory subject matter to an otherwise abstract idea unless there is positive recitation in the claim as a whole to breathe life and meaning into the preamble. In the present case, none of the recited steps are directed to anything in the technological arts as explained above. Looking at the claim as a whole, nothing in the body of the claim recites any structure or functionality to suggest that a computer performs the recited steps. Therefore, the preamble is taken to merely recite a field of use. Looking at the claims as a whole, nothing in the body of the claims recite any structure or functionality to suggest that a computer performs a task.

Additionally, for a claimed invention to be statutory, the claimed invention must produce a useful, concrete, and tangible result. In the present case, the claimed invention does not produce a useful, concrete, and tangible result. As to **claim 1 and 6**, the claimed invention, as understood by the examiner, is merely identifying a minimal mathematical relationship between a target value of a management index and a restricted estrangement value using linear programming. The purpose it to calculate a "feasible production plan" based on the values calculated, however the results are simply an answer to a mathematical problem where something or someone else has to interpret them to employ them in whatever fashion necessary to realize the benefit of the calculation. No steps are identified in the dependent or independent claims to indicate how the values that are calculated are translated into a production plan, that is,

the purpose is identified but no steps are identified to indicate how the purpose is realized. As to **claim 5**, the claimed invention only stores the information associated with claim 1. As to **claim 11**, the claimed invention, as understood by the examiner, is merely receiving target value information of various management indices then calculating a minimal estrangement value limitation. The values are to be used by a production planning system, that is, the field of use for the mathematical results is a production planning system. Again, the purpose is identified but no steps are identified to indicate how the purpose is realized. Therefore, the claims as written only constitute a manipulation of an abstract idea. A process that consists solely of the manipulation of an abstract idea is not concrete or tangible. See *In re Warmerdam*, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also *Schrader*, 22 F.3d at 295, 30 USPQ2d at 1459.

Since the claimed invention, as a whole, is not within the technological arts as explained above and does not produce a useful, concrete, and tangible result, the same rejection as stated above for claims 1, 5, 6, and 11 applies to **claims 2-4 and 7-10**.

10. **Claims 1-11** are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 1-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (U.S. Patent 6,138,103) in view of Thierauf et al. (Thierauf et al., Decision Making Through Operations Research, Second Edition, John Wiley & Sons, 1975, chapter 6). Cheng et al. disclose a method for production planning comprising:

- [Claim 1] putting a relationship between a target value of a predetermined management index and an estrangement value therefrom into restriction condition, when formulating the restriction condition into a linear programming problem (col. 2, lines 5-46, and col. 4, lines 22- 31, Cheng et al. teach a decision-making methodology for production planning in an uncertain demand environment using the combination of the scenario-based analysis and the implosion technology. Implosion-based systems perform resource allocation under constraints by using demands, available resources, and the Bill of Manufacture (includes BOM as well as Bill Of Capacities) to determine a feasible product mix that meets the users goals. These goals correspond to user-defined criteria such as customer serviceability, profit maximization, inventory minimization, and revenue maximization. The LP (linear program) is a simplified version of a typical material planning problem with deterministic demands. All the decisions are made at the beginning of the planning horizon. The solution is obtained using an implosion technology-based optimization engine, such as a Supply Capability Engine (SCE). The examiner interprets "target value of a predetermined management index" to be customer serviceability, profit maximization, inventory minimization, and revenue maximization, and an estrangement value" to be a constraint.); and
- calculating out a feasible production plan, so that the estrangement between said predetermined management index and the target value thereof, being calculated from an executable solution of said linear programming problem, comes to be minimal (col. 2, lines 5-46, Cheng et al teach a decision-making methodology for production planning in an uncertain demand environment using the combination of the scenario-based analysis and the implosion

technology. Goals correspond to user-defined criteria such as customer serviceability, profit maximization, inventory minimization, and revenue maximization. The complete enumeration of performance measures for each solution against all demand scenarios produces a payoff table, which may be referred to as a production plan payoff table (PPPT). The examiner interprets the PPPT as the "feasible production plan".).

Cheng et al. fail to teach calculating out the feasible production plan so the difference comes to be minimal. Thierauf et al. teach a minimization problem where the computational procedure for the simplex method (linear Program) is readily applicable to a minimization problem whose main objective is to minimize costs (pp 181). It would have been obvious to one of ordinary skill in the art to use the minimization approach of Thierauf et al. with the teachings of Cheng et al. since Cheng et al. teach an optimal production plan (col. 4, line 57 to col.7, line 37). Thierauf et al. teach blending of raw material, inventory scheduling, manpower management planning, and production scheduling as applications of linear programming (pp 202-203). A company's goal is to maximize profits by maximizing revenues and minimizing cost. Linear programming identifies optimal solutions to production problems as identified by Thierauf et al. to both maximize production and minimize cost. Therefore, implementing linear programming helps companies maximize profits.

- [Claim 2] said management index is a combination of at least one or more of inventory, profit, sales, cost, a rate of operation, fulfilling rate of demands from marketing point, cash which production activity produces, and an efficiency at which the production activity produces the cash (Cheng et al.: col. 2, lines 5-46, Cheng et al. teach a decision-making methodology for production planning in an uncertain demand environment using the combination of the scenario-based analysis and the implosion technology. Implosion-based systems perform resource allocation under constraints by using demands, available resources, and the Bill of Manufacture (includes BOM as well as Bill Of Capacities) to determine a feasible product mix that meets the users goals.

These goals correspond to user-defined criteria such as customer serviceability, profit maximization, inventory minimization, and revenue maximization.)

- [Claim 3] the target value of the management index is set to be equal to, greater or less than that, or maximal or minimal, with respect to a numerical value appointed (Cheng et al.: col. 6, line 64 to col. 7, line 7, Cheng et al. teach the optimal production plan specifies the production quantities for each product in each period with the best overall performance measure under materials and capacity constraints.).
- [Claim 4] the production amount and/or the supply amount and/or the transportation means is/are calculated out by repeating steps of: setting the target value of the management index through an input means, solving said linear programming problem in a calculation means, displaying a result thereof on a display means, and again, changing said restriction condition stored in a memory means upon receipt of change in the target value of the management index through the input means, solving the linear programming problem, the restriction condition of which is changed, in the calculation means, and displaying the result thereof on the display means (Cheng et al.: col. 6, lines 3-8 and line 64 to col. 7, line 7, Cheng et al. teach the optimal production plan specifies the production quantities for each product in each period with the best overall performance measure under materials and capacity constraints. When a production plan is evaluated against a different demand scenario, the production plan will be re-optimized when new information about demand becomes available, and only the initial portion of the production plan has to be fixed and implemented.).
- [Claim 7] the linear programming problem is solved by adding at least one of management indices to said predetermined management indices, or by changing at least one of said management indices into another index, or by changing at least one target value of said predetermined management indices into another value, thereby calculating out values of the management indices after the addition or the change thereof (Cheng et al.: col. 6, lines 3-8 and line 64 to col. 7, line 7, and col. 10, lines 16-33, Cheng et al. teach the optimal production plan specifies the production quantities for each product in each period with the best overall performance measure under materials and capacity constraints. When a production plan is evaluated against a different demand scenario, the production plan will be re-optimized when new information about demand becomes available, and only the initial portion of the production plan has to be fixed and implemented. The four major steps pf the PPPT computations include modifying data where the user is allowed to view/modify the data used for the PPPT computations.).
- [Claim 8] the values of said predetermined management indices are displayed on a display means in a form of a radar chart or a rod graph (Cheng

- et al.: Figure 8, col. 10, line 64 to col. 11, line 5, Cheng et al. teach a bar chart format to display the payoff table, i.e. the performance measures of a given plan against different scenarios or the performance measures of different plans for a given scenario.).
- [Claim 9] the values of said predetermined management indices and the values of said predetermined management indices after the addition or the change thereof are displayed on a display means in a form of a radar chart or a rod graph (Cheng et al.: Figure 8, col. 10, line 64 to col. 11, line 5, Cheng et al. teach a bar chart format to display the payoff table, i.e. the performance measures of a given plan against different scenarios or the performance measures of different plans for a given scenario.).
- [Claim 10] the values of said predetermined management indices and actual values of the management indices are displayed on a display means in a form of a radar chart or a rod graph (Cheng et al.: Figure 8, col. 10, line 64 to col. 11, line 5, Cheng et al. teach a bar chart format to display the payoff table, i.e. the performance measures of a given plan against different scenarios or the performance measures of different plans for a given scenario.).

**Claim 5, 6, and 11** substantially recites the same limitations as that of claim 1 with the distinction of the recited method being a memory medium and method. Hence the same rejection for claim 1 as applied above applies to claims 5, 6, and 11.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Dietrich et al. (U.S. Patent 5,970,465) disclose a method for part procurement in a production system with constrained resources with the goal being to achieve the highest service level while maintaining the lowest possible WIP and inventory on the basis of linear demand, resources, and supply constraining information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Heck whose telephone number is (703) 305-8215. The examiner can normally be reached Monday thru Friday between the hours of 8:00am - 4:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq R. Hafiz can be reached on (703) 305-9643. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Any response to this action should be mailed to:

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Hand delivered responses should be brought to 220 South 20<sup>th</sup> Street, Crystal Plaza Two, Lobby, Room 1B03, Arlington, Virginia 22202.

mch  
15 September 2004



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